Work Order ID 80719

February-28-12 10:29:08 AM

80719

Item ID: D412-664-203 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Crosstube Aft **Stop** *NS2*

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Approvals: **Process Plan:** MLJ **Date:** 12/02/28 **Tooling:** **Date:** **Run Start** *NR1*

QC: **Date:** **SPC (Y/N):** **Date:** **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D412-664-243	E/DEO

100 *100* DC
Document Control

DOCUMENT CONTROL 0.00

Memo 0.00

Photocopy bluefile and create labels as per PPP D412-664-203 CHG 008 S 17/02/12

110 *110* Packaging
Packaging

Packaging 0.00

Memo 0.00

MO 12-3-28

120 *120* CNC Bend 2
CNC Alpha 160 Bender

BENDING MACHINE - CROSSTUBES 0.00

Memo 0.00

Bend tube as per Dwg D412-664-243 using CNC bender program 412-aft and Folio FT010

MO/RM 12-3-28

Dart Aerospace Ltd

W/O: 80719	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D412-664-203 PAR #: ______ Fault Category: X-tube NCR: Yes ~~No~~ DQA: [signature] Date: 12/04/23

Resolution: Use as is Disposition: Use as is QA: N/C Closed: CK Date: 12/4/23

NCR: 12-1357	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
12.03.26	120	Tube crushing is over tolerance after bending at bottom of bend	[initials] 12.03.28 Ø51042	Acceptable per attached SK	N/A	[initials] 12/03/29	[initials] 12.03.28 Ø51042	[initials] 12/03/29

NOTE: Date & initial all entries

Work Order ID 80719

February-28-12 10:29:08 AM

80719

Item ID: D412-664-203 **Accept** *N900040100* **Setup** **Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Crosstube Aft

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run **Start** *NR1*

Approvals: **Process Plan:** **Date:** **Tooling:** **Date:**

QC: **Date:** **SPC (Y/N):** **Date:** **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC15- Crosstube Dimensional Check **Memo**	0.00 0.00 S12/3/28							
140 *140* Crosstubes Crosstubes	Crosstubes **Memo** 1-Drill pilot holes in tube as per Dwg D412-664-243 using drill Jig DT8550 & DT8551and drill table DT8577 using #9 holes as per QSI 10 to install towers. 2-Ream hole to finish size in tube as per Dwg D412-664-243using drill Jig DT8550 & DT8551.Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes. 3-SCRIBE PART # & BATCH # 4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-243	0.00 0.00							

MO / 12-3-29

MO 12-3-29

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Work Order ID 80719 *80719*

February-28-12 10:29:08 AM

Item ID: D412-664-203 **Accept** *N900040100* **Setup Start** *NS1*
Revision ID:
Item Name: Crosstube Aft **Stop** *NS2*

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**
Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**
Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run Start** *NR1*
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* HandFXtube Hand Finishing Crosstubes	Crosstubes Chemical Conversion Memo	0.00 0.00			Ray	12-3-29			
160 *160* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 S12/03/29 0.00							
170 *170* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 S12/03/29 0.00							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: _______ Fault Category: __________________ NCR: Yes No DQA: _____ Date: _________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

Item ID: D412-664-203 **Accept** *N900040100* **Setup** **Start** *NS1*
Revision ID:
Item Name: Crosstube Aft **Stop** *NS2*

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**
Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**
Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run** **Start** *NR1*
QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Outsource2 Outsource process - NDT	Outsource process - NDT per QSI038 4.1 **Memo** Liquid Penetrant Inspection as per QSI 038Or Issue P/O: 16611 LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order	0.00 0.00				CL 12/04/02 ①			
190 *190* Packaging Packaging	Packaging **Memo** Inspect for transit damage Ensure copy of NDT results attached to work order.	0.00 0.00				[illegible] 4/12 ①			
200 *200* QC Quality Control	QC5- Inspect part completeness to step on W/O **Memo** Inspect for damage & ensure results are as per Dwg D412-664-203	0.00 0.00 S 12/04/02							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Item ID:	D412-664-203		**Accept**	*N900040100*	**Setup Start** *NS1*
Revision ID:					**Stop** *NS2*
Item Name:	Crosstube Aft				
Start Date:	28/02/2012	**Start Qty:** 1.00	*1*	**Cust Item ID:**	
Required Date:	19/03/2012	**Req'd Qty:** 1.00	*1*	**Customer:**	
Reference:					

Approvals: **Process Plan:** ____ **Date:** ____ **Tooling:** ____ **Date:** ____ **Run Start** *NR1*

QC: ____ **Date:** ____ **SPC (Y/N):** ____ **Date:** ____ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210 *210* SprayPaint Spray Painting	SprayPaint	0.00				AS	12 -	4 -	2
	Memo	0.00							
220 *220* QC Quality Control	QC14- Inspect Spray Paint	0.00				AS	12	04	03
	Memo	0.00							

210 Memo:

Mask underside of crosstube as shown

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per DEO D412-664-243 and QSI 005 4.2

PRIME: 120133
Start Time: 8:00 AS 12-3-31
Fininsh Time: 10:00
PAINT: 120985
Start Time: 7:30 AS 12-4-2
Finish Time: 8:30

220 Memo:

Then,Wrap in plastic bag to protect from scratches

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 80719

February-28-12 10:29:08 AM

80719

Item ID:	D412-664-203	**Accept**	*N900040100*
Revision ID:		**Setup Start**	*NS1*
Item Name:	Crosstube Aft	**Stop**	*NS2*
Start Date:	28/02/2012	**Start Qty:** 1.00 *1*	**Cust Item ID:**
Required Date:	19/03/2012	**Req'd Qty:** 1.00 *1*	**Customer:**
Reference:			

Approvals:	**Process Plan:**	**Date:**	**Tooling:**	**Date:**	**Run Start**	*NR1*
	QC:	**Date:**	**SPC (Y/N):**	**Date:**	**Stop**	*NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
230 *230* Crosstubes Crosstubes	Crosstubes	0.00				AB	12-4-9		
	Memo	0.00							
240 *240* QC Quality Control	QC5- Inspect part completeness to step on W/O	0.00							NN 12-04-10
	Memo	0.00							

Memo (230):

Assemble as per Dwg D412-664-203

1- Install chafing shield as per DEO D412-664-243.Top holes should be facing up.

A/R Proseal 890 Batch: 121287
EXP: 11/12

2- Lightly scuff the bonded area using a 320 grit sand paper and clean the area with 41058 wash 'n' wipe

3-Install support with Scotch-Weld DP460 and install clamps as per DEO Dwg D12-664-243 using installaition jig DT9024. Torque clamps as per dwg

A/R Scotch-Weld DP460 Batch: 120398
EXP: 14 Mar. 2013

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

Work Order ID 80719 *80719*

February-28-12 10:29:08 AM

Item ID: D412-664-203 **Accept** *N900040100* **Setup Start** *NS1*

Revision ID:

Item Name: Crosstube Aft **Stop** *NS2*

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Approvals: **Process Plan:** ______ **Date:** ______ **Tooling:** ______ **Date:** ______ **Run Start** *NR1*

QC: ______ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
250 *250* Packaging	Pick Kit	0.00							
Packaging	**Memo**	0.00							
260 *260* QC	QC4- 100% Inspect kits for completeness	0.00							
Quality Control	**Memo**	0.00							
270 *270* Packaging	Packaging	0.00							
Packaging	**Memo**	0.00							

Identify and pack for shipping as per PPP D412-664-203
******Ensure tube is not packaged if curing time is less than 12 hrs, see step 27 for application time & date *******
Time & date of packaging:__________
Location:__________

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ________________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ________________ **Disposition:** ________________ **QA: N/C Closed:** _________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 80719

February-28-12 10:29:08 AM

80719

Item ID: D412-664-203 **Accept** *N900040100* **Setup** **Start** *NS1*

Revision ID:

Item Name: Crosstube Aft **Stop** *NS2*

Start Date: 28/02/2012 **Start Qty:** 1.00 *1* **Cust Item ID:**

Required Date: 19/03/2012 **Req'd Qty:** 1.00 *1* **Customer:**

Reference:

Run **Start** *NR1*

Approvals: **Process Plan:** ________ **Date:** ______ **Tooling:** ________ **Date:** ______

QC: ________ **Date:** ______ **SPC (Y/N):** ______ **Date:** ______ **Stop** *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
280 *280*	QC21- Final Inspection - Work Order Release	0.00				12/4/16			
QC Quality Control	**Memo**	0.00							

JMF
12-04-13

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

February-28-12 10:30:22 AM

Work Order ID: 80719 *80719*

Parent Item: D412-664-203 *D412-664-203*

Parent Item Name: Crosstube Aft

Start Date: 28/02/2012 **Required Date:** 19/03/2012

Start Qty: 1.00 **Required Qty:** 1.00

Comments:
IPP Rev:E04.02.16Reformat; Added D3189-1K/DS
IPP Rev:F 06-03-29 Remove Coments on Pick List JLM
IPP Rev:G 06.12.08 per ECN 886 EC
IPP Rev:H 07-04-30 As per Rev D JLM
IPP Rev:I 08-06-12 add comment in seq. 21 DD verified by:EC IPP rev J
11.04.21 DEO D412-664-243-E-1 EC verified DD IPP REV:K
11.10.03 DEO D412-664-243-E-2 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D412-664-203TRN *D412-664-203TRN* Crosstube Turning Detail		Manufactured	No			110	Each	4.0000	1 **	1			

Location		Loc Qty	Loc Code			
LG	80851	4		①	MO	12-3-28
	80128	1				
	80129	1				
	80130	1				
	80131	1				

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D2896-1 *D2896-1* Support		Manufactured	No			230	Each	21.0000	1 **	1	AB	12-4-9	

71502 or 74465 ①

Location		Loc Qty	Loc Code	
LG053		21		
	74465	21		

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3189-1 *D3189-1* Chafing Shield		Manufactured	No			230	Each	35.0000	2 **	2	AB	12-4-9	

Location		Loc Qty	Loc Code	
FG		4		
	36065	4		
LG053		31		
	76473	20		
	79796 (circled)	11		②

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** ____________________ **NCR:** Yes No **DQA:** _____ **Date:** __________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** __________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

February-28-12 10:30:22 AM

Work Order ID: 80719 *80719*

Parent Item: D412-664-203 *D412-664-203*

Parent Item Name: Crosstube Aft

Start Date: 28/02/2012 **Required Date:** 19/03/2012

Start Qty: 1.00 **Required Qty:** 1.00

D3595-063-570 Manufactured No 230 Each 112.0000 2 2

D3595-063-570 ** AB 12-4-9

RUBBER CUSHION

Location		Loc Qty	Loc Code	
FG		8		
	37971	1		
	42243	7		
MAT052		104		
	71534	27		2
	76546	77		

MS21920-28 Purchased No 230 Each 35.0000 4 4

MS21920-28 ** AB 12-4-9

Clamp(per MIL-DTL-8783C)

120884 (4)

Location		Loc Qty	Loc Code	
FG		5		
	105884	5		
LG050		30		
	116839	2		
	118713	4		
	119285	1		
	119920	1		
	120054	22		

MS21920-30 Purchased No 230 Each 78.0000 2 2

MS21920-30 ** AB 12-4-9

clamp(per MIL-DTL-8783C)

Location		Loc Qty	Loc Code	
LG		50		
	119529	50		2
LG050		14		
	117998	14		
LG051		14		
	111258	14		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Picklist Print

February-28-12 10:30:22 AM

Work Order ID: 80719 *80719*

Parent Item: D412-664-203 *D412-664-203*

Parent Item Name: Crosstube Aft

Start Date: 28/02/2012 **Required Date:** 19/03/2012

Start Qty: 1.00 **Required Qty:** 1.00

AN6-40A Purchased No 250 Each 128.0000 4 4

AN6-40A **

Bolt

Location		Loc Qty	Loc Code	
ST342		128		
	119749	8		
	120187	100		120187
	120833	20		

AN6-41A Purchased No 250 Each 87.0000 2 2

AN6-41A **

Bolt

Location		Loc Qty	Loc Code	
ST342		87		
	119749	20		119749
	120187	17		
	120423	50		

AN960JD616 NAS1149D0663J Purchased No 250 Each 0.0000 18 18

AN960JD616 ** M 120644

Washer

MS21042L6 Purchased No 250 Each 1,072.000 6 6

MS21042L6 **

Nut

Location		Loc Qty	Loc Code	
ST300		1072		
	117677	25		
	118384	3		
	118927	48		
	119075	796		119075
	120308	200		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

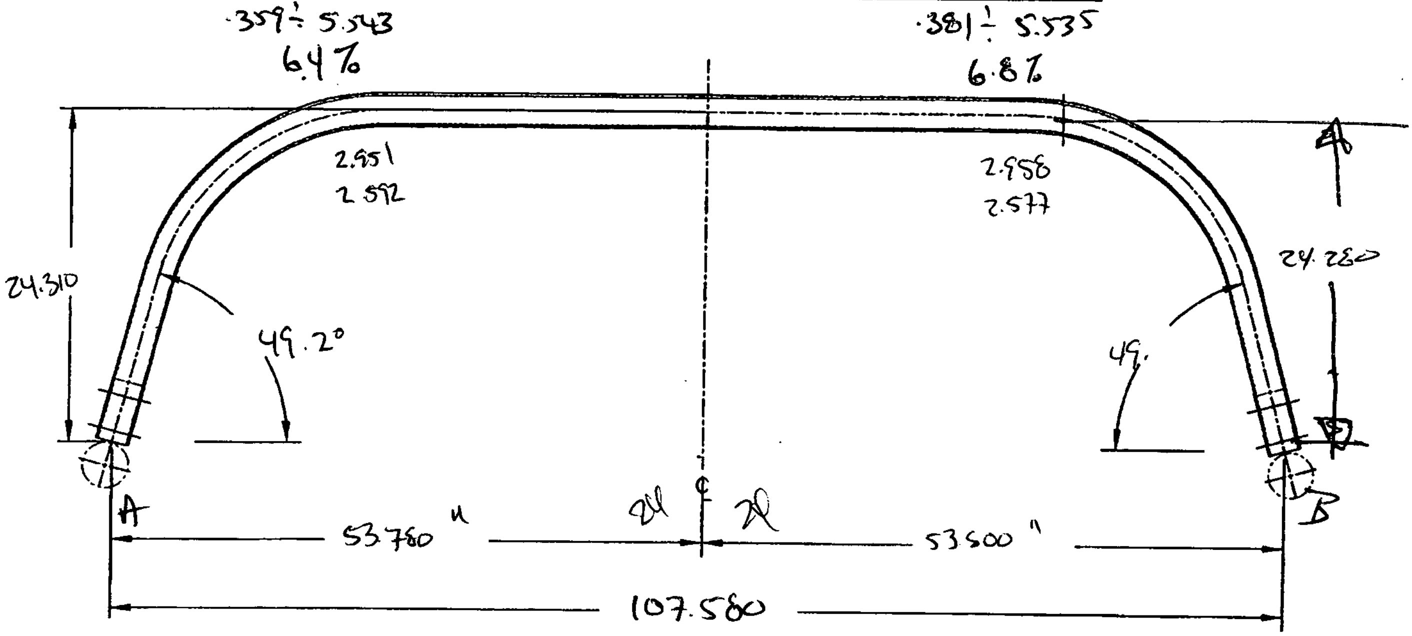
Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	80719
Description: Crosstube High Aft (412)	Part Number:	D412-664-203
Inspection Dwg: D412-664-243 Rev: E		Page 1 of 1

Required Dimension	Min	Max
Height	24.24	24.50
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70



Comments
Side A = 6.4% crushing @ 24 Passes
Side B = 6.8% crushing @ 24 Passes

QC15 Inspection	S
Date	12/03/28

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.08	Dimensions updated per Dwg rev. D	KJ/JLM	
C	10.02.02	Dwg Rev updated	KJ	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty -243	Part Number	Description
1	X	**D412-664-243**	**CROSSTUBE ASSEMBLY (412 HIGH AFT)**
2	1	D6009-129	CROSSTUBE
3	2	D3595-063-570	RUBBER CUSHION
4	1	D2896-1	SUPPORT
5	2	D3189-1	CHAFING SHIELD
6	2	D2856-600-1009	ABRASION STRIP
7	4	MS21920-28	CLAMP
8	2	MS21920-30	CLAMP (OR MS21920-32)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

80719 MLJ 12/02/28

② DEO ATTACHED

RELEASED 2009-10-29

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6009-129
   FINISHED LENGTH = 124.100±0.020 (BEFORE BENDING/TRIMMING)
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D412-664-243" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
7) WEIGHT: 47.0 lbs (PER IIN-D212-664)
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-30 CLAMPS (OR -32) WITH D3595-063-570 RUBBER CUSHIONS TO SECURE THE D2896-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
15) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

REV.	DESCRIPTION	BY	DATE
E	REFORMAT/REVISE GENERAL NOTES; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); ADD TOLERANCE (ZN B6-3, C4-3, C8-3 & C5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	09.09.30
D	REMOVE D2732-058, CHANGE TO D3595-063-570	PH	07.03.09
C	REMOVE D2856-600-1087, ADD D2732-058 & MAGNOBOND 6398, MS21920-32 WAS MS21920-30	MB	06.10.27
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	01.10.17

DESIGN	PH	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. D412-664-243 — REV. E — SHEET 1 OF 4
MFG. APPR.		
APPROVED		TITLE CROSSTUBE ASSEMBLY (412 HI AFT) — SCALE NTS
DE APPR.		
DATE	09.09.30	

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

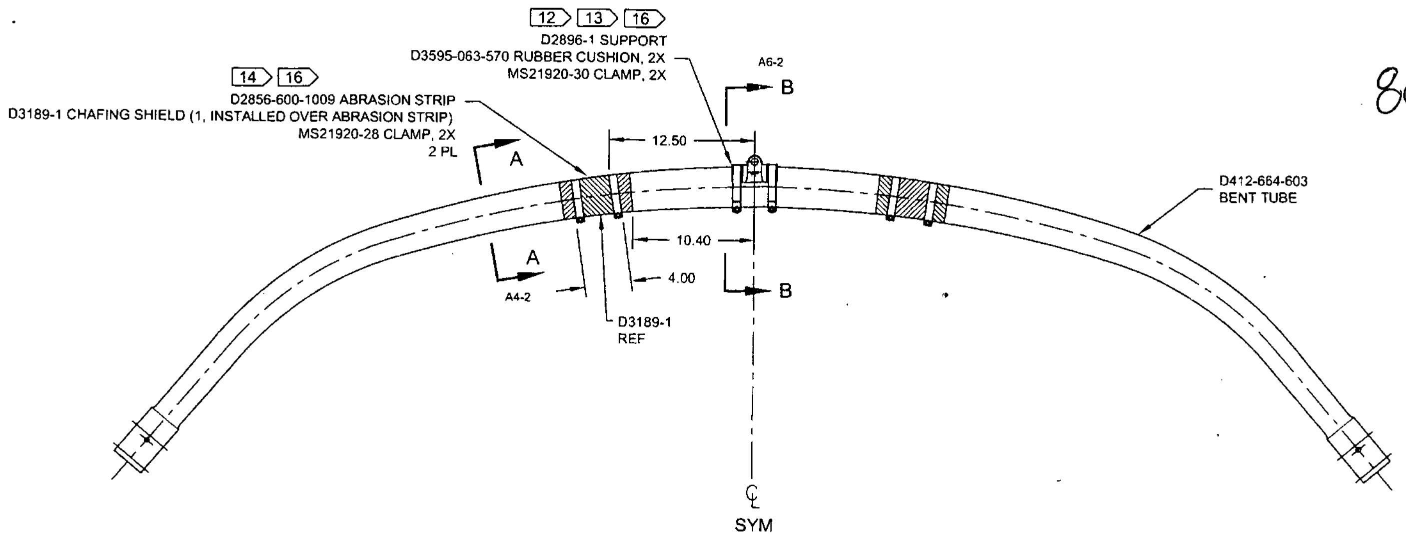
Part No: ____________ PAR #: ________ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

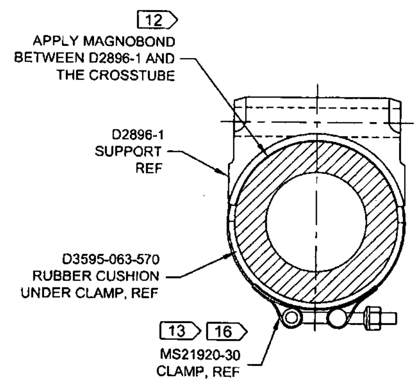
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

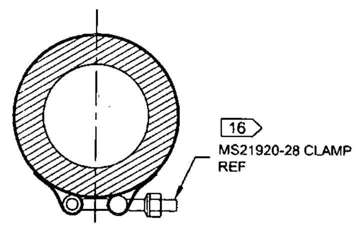
80719



D212-664-243
ASSEMBLY DETAIL E



SECTION B-B D4-2
SCALE 4X



SECTION A-A C6-2
SCALE 4X

② DEO'S ATTACHED

RELEASED 2009-10-29

DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	[illegible]	DRAWING NO. D412-664-243	REV. E SHEET 2 OF 4
MFG. APPR.	[illegible]		
APPROVED	[illegible]	TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	SCALE NTS
DE APPR.	[illegible]		
DATE	09.09.30		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

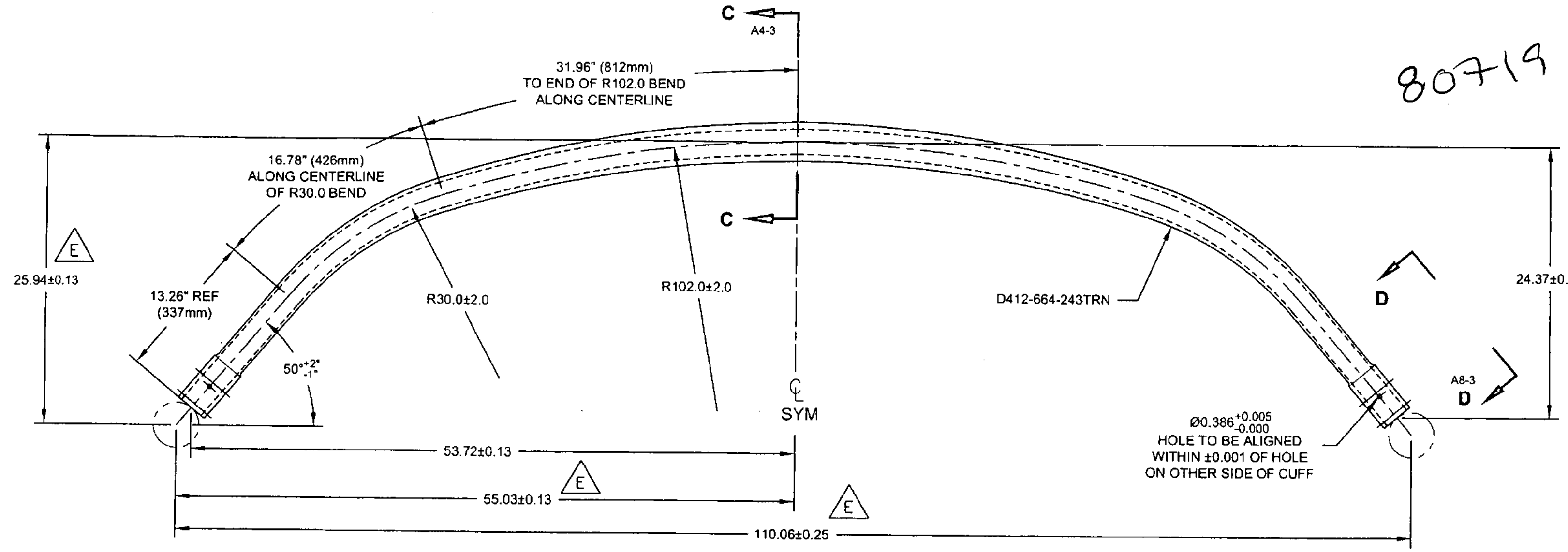
Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

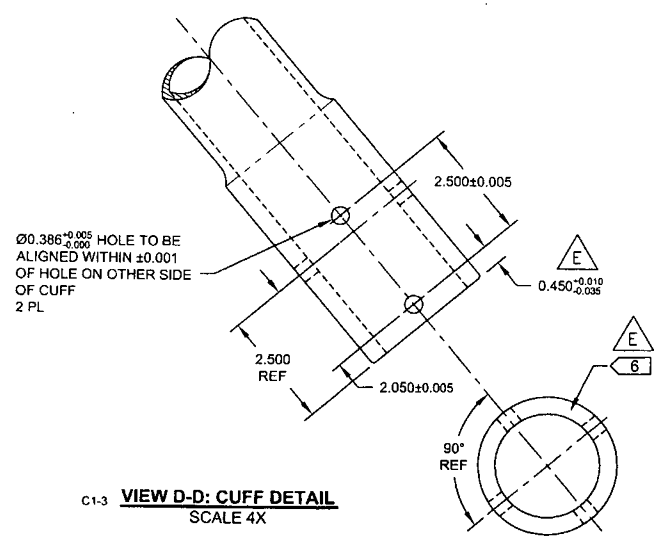
80719



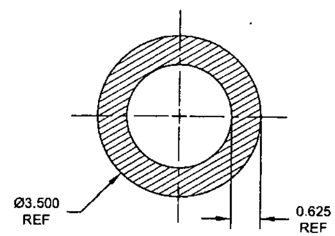
D412-664-603 10
BENDING AND DRILLING DETAIL E

② DEO ATTACHED

RELEASED
2009 -10- 29



C1-3 **VIEW D-D: CUFF DETAIL**
SCALE 4X



SECTION C-C D5-3
SCALE 4X

DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO. D412-664-243	REV. E SHEET 3 OF 4
MFG. APPR.			
APPROVED		TITLE CROSSTUBE ASSEMBLY (412 HI AFT)	SCALE NTS
DE APPR.			
DATE	09.09.30		

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

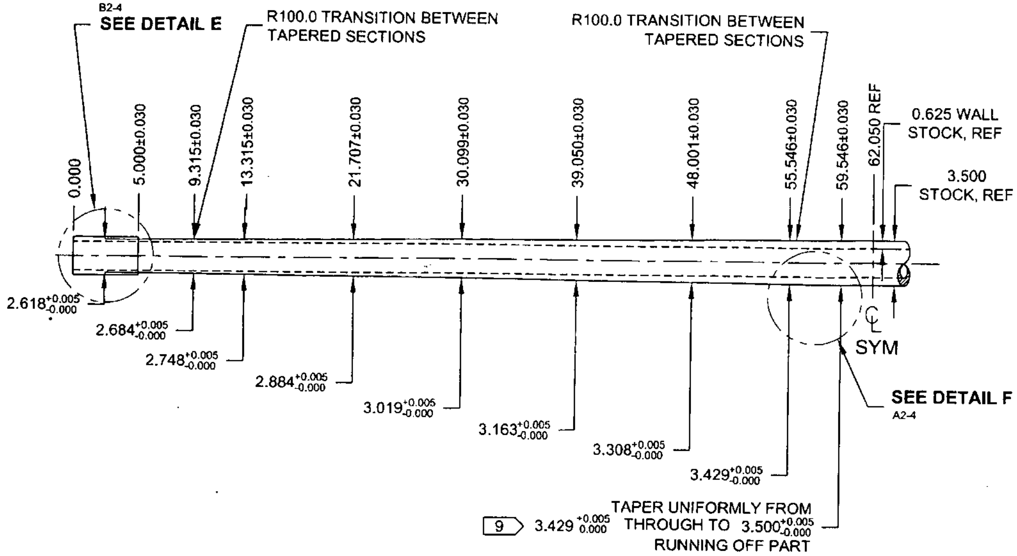
Part No: ____________ **PAR #:** ______ **Fault Category:** ____________ **NCR:** Yes No **DQA:** _____ **Date:** ________

Resolution: ____________ **Disposition:** ____________ **QA: N/C Closed:** ________ **Date:** ________

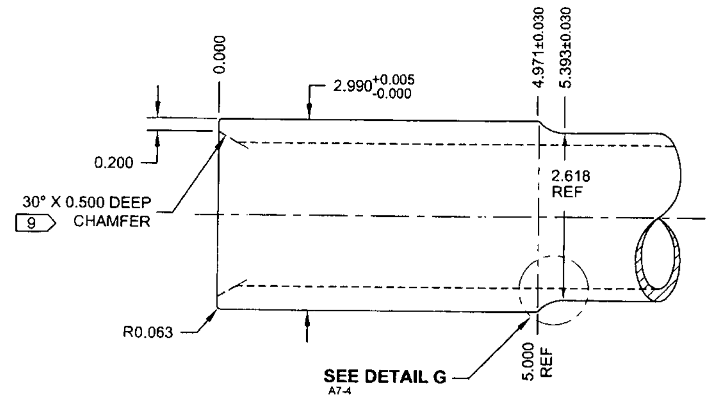
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

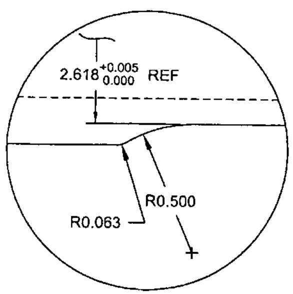
807.19



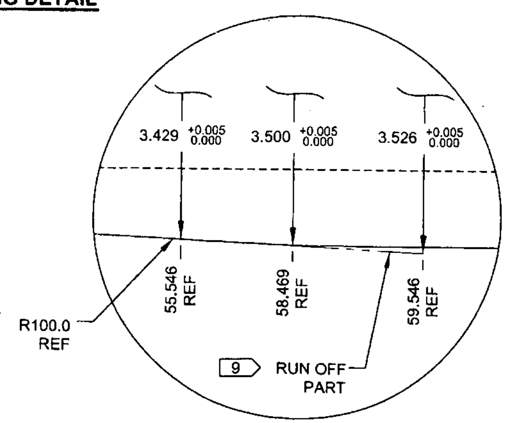
D412-664-243TRN TURNING DETAIL E



DETAIL E: CROSSTUBE CUFF D8-4
SCALE 5X



DETAIL G: CUFF TRANSITION C2-4
SCALE 10X



DETAIL F: TAPER RUN-OFF C4-4
NOT TO SCALE

② DEO ATTACHED

RELEASED 2009-10-29

DESIGN	PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	DRAWING NO. D412-664-243 — REV. E — SHEET 4 OF 4
CHECKED	[signature]	
MFG. APPR.	[signature]	
APPROVED	[signature]	TITLE CROSSTUBE ASSEMBLY (412 HI AFT) — SCALE NTS
DE APPR.	[signature]	
DATE	09.09.30	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ **PAR #:** _______ **Fault Category:** __________________ **NCR:** Yes No **DQA:** _____ **Date:** _________

Resolution: ____________________ **Disposition:** ____________________ **QA: N/C Closed:** __________ **Date:** _________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT) REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 1 OF 2	SCALE NTS
DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.	
DATE 11.03.31	DATE 11/03.31	DATE 11.03.31	DATE 11/03.31	DATE 11.03.31	

PURPOSE:
REMOVED ABRASION STRIP IN FAVOR OF A THIN LAYER OF PROSEAL 890.

80719

CHANGE:

PARTS LIST IS AMENDED AS FOLLOWS:

IS:

Item	Qty -243	Part Number	Description
6	0	D2856-600-1009	ABRASION STRIP

WAS:

Item	Qty -243	Part Number	Description
6	2	D2856-600-1009	ABRASION STRIP

NOTES 2 AND 14, SHEET 1 ARE AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA)
PAINT OUTSIDE PER DART QSI 005 4.2
AFTER PAINTING, APPLY CLEAR COAT ON HATCHED AREA

14) APPLY A THIN COAT OF PROSEAL 890 ON INSIDE CONCAVE SURFACE OF D3189-1 CHAFING SHIELD AND LET CURE PER MANUFACTURER'S INSTRUCTIONS. INSTALL PROSEALED D3189-1 CHAFING SHIELD ONTO CROSSTUBE BY APPLYING A THIN COAT OF PROSEAL 890 ONTO CROSSTUBE. BE SURE TO ELIMINATE ANY AIR GAPS.

RELEASED 2011-04-07

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

14) INSTALL D2856-600-1009 ABRASION STRIPS WITH A 0.13 REF GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.

Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ______________ **PAR #:** ______ **Fault Category:** ______________ **NCR:** Yes No **DQA:** _____ **Date:** _________

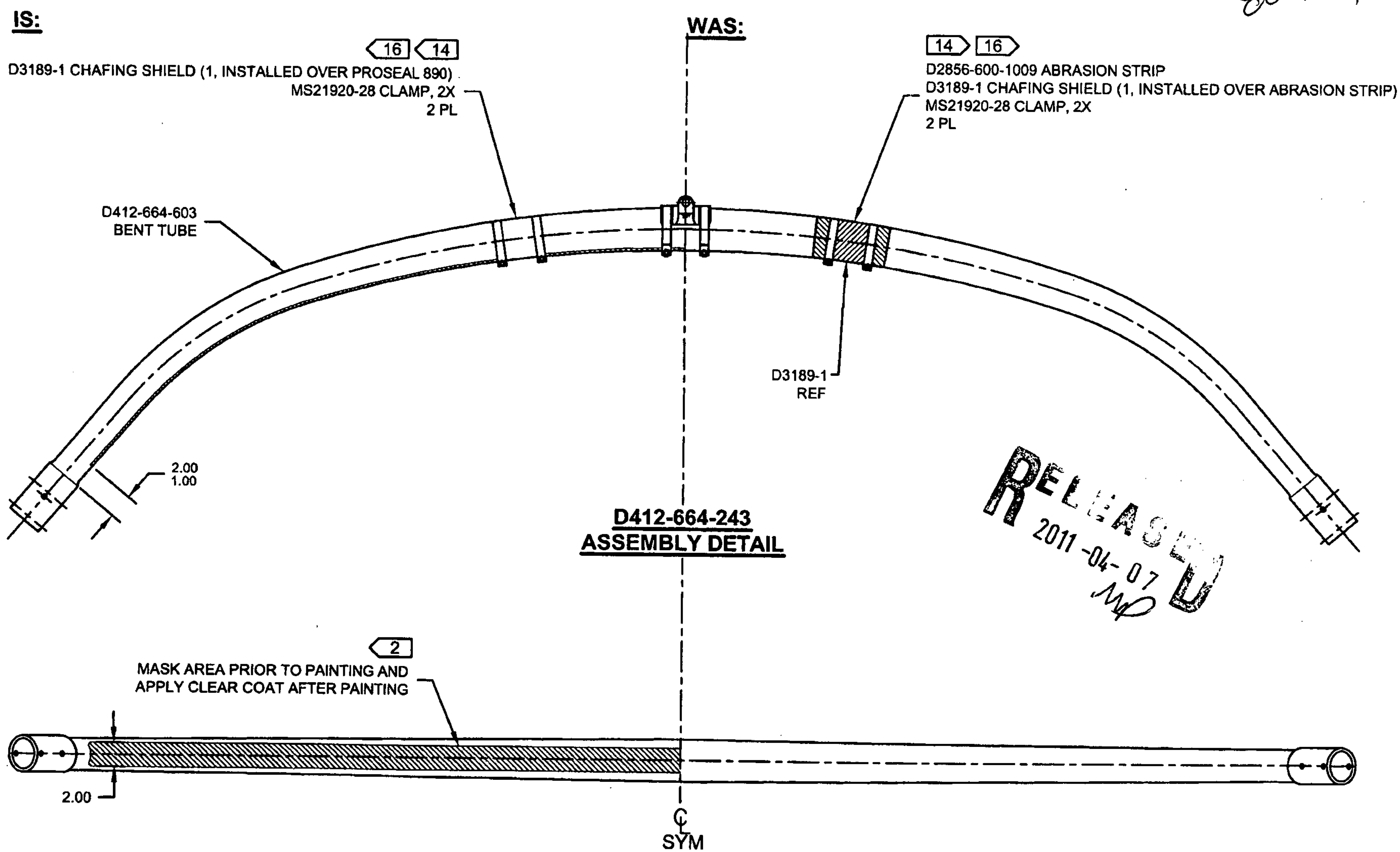
Resolution: ______________ **Disposition:** ______________ **QA: N/C Closed:** _________ **Date:** _________

NCR:	WORK ORDER NON-CONFORMANCE (NCR)							
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASSEMBLY (412 HI AFT) REV. E		DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-1	SHEET NO. SHEET 2 OF 2	SCALE NTS
DRAWN		CHECKED	MFG. APPR.	APPROVED	DE APPR.	
DATE 11.03.31		DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	DATE 11.03.31	

80719



Dart Aerospace Ltd

W/O:	WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________ PAR #: ______ Fault Category: ____________ NCR: Yes No DQA: _____ Date: ________

Resolution: ____________ Disposition: ____________ QA: N/C Closed: ________ Date: ________

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
			Corrective Action Section B					
DATE	STEP	Description of NC Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspector

NOTE: Date & initial all entries

DRAWING NO. D412-664-243	TITLE CROSSTUBE ASS'Y (412 HI AFT) REV. E	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO. D412-664-243-E-2	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN	CHECKED ASS	MFG. APPR.	APPROVED	DE APPR.	
DATE 11.09.07	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	DATE 11.09.19	

80719

PURPOSE:
REPLACE MAGNOBOND WITH 3M DP460 SCOTCH-WELD EPOXY ADHESIVE

CHANGE:

IS:

Item	Qty -243	Part Number	Description
9	A/R	SCOTCH-WELD DP460	EPOXY ADHESIVE, 3M SCOTCH-WELD

WAS:

Item	Qty -243	Part Number	Description
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 16, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) INSTALL D2896-1 CENTER SUPPORT USING A 0.04" TO 0.07" THICK LAYER OF SCOTCH-WELD DP460 PER QSI 015. LET CURE FOR 24 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER ADHESIVE HAS CURED FOR 24 HOURS.**

WAS:

12) INSTALL D2896-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

16) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED 2011-09-29

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: ____________________ PAR #: ________ Fault Category: ____________________ NCR: Yes No DQA: _____ Date: __________

Resolution: ____________________ Disposition: ____________________ QA: N/C Closed: __________ Date: __________

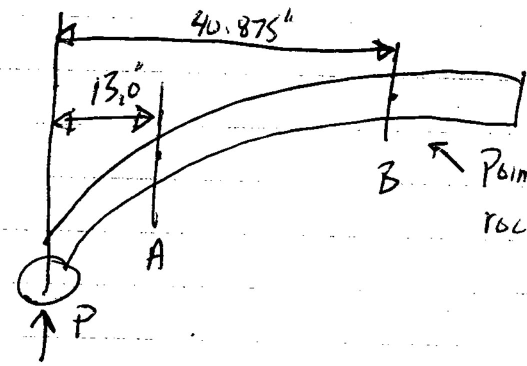
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

11.12.06

CRUSHING OF D412-664-243

Acceptability of 8% CRUSHING AT END OF BEND



Point A: $OD_1 = 2.961"$, $OD_2 = 2.522"$

CRUSHING = $(2.961-2.522)/(2.961+2.522) = 8\%$

$I = 1.676 \text{ in}^4$ (from AutoCAD)

Point B: $OD_1 = 3.307"$, $I = 4.613 \text{ in}^4$

A: $F = Mc/I = P \times 13 \times 2.961 / 2 \times 1.676 = 11.484 \cdot P$

B: " $= P \times 40.875 \times 3.307 / 2 \times 4.613 = 14.651 \cdot P$

M.S. = $14.651/11.484 - 1 = 0.27$

∴ Tube will break at rocker beam contact before area of 8% crushing; 8% crushing in area at end of tube bend is acceptable

GP 11.12.06

ACUREN

LIQUID PENETRANT TEST REPORT

P- 12180

PAGE 1 OF 1

CLIENT: Dart AeroSpace
DATE: 03/30/2012 TIME AM ☑ PM ☐
ATTENTION: LINDA LACELLE
ACUREN JOB NO. 188-12-C0070
ADDRESS: 1270 ABERDEEN ST
Hawkesbury ON.
PO/WO No. —
WORK LOCATION: SAME
ACCEPTANCE STD: ASTM 1417/CSI-038 REV./DATE 2005

PROJECT: FPI ON MACHINED PARTS AND CROSS TUBES
ITEM(S) EXAMINED: (11) SLEEVES (5) STUDS (5) CROSS TUBES

JOB DESCRIPTION — PROCEDURE NO. LT-002 REV./DATE 2008 — TECHNIQUE NO. LT-Tech2 REV./DATE 2008

PART NO.: SEE RESULTS — MATERIAL: Anodized Aluminum → STAINLESS STEEL — THICKNESS: Various

SCOPE: A WET FLUORESCENT LIQUID PENETRANT INSPECTION WAS CARRIED OUT 100% EXTERNAL SURFACE.

TEST DETAILS

METHOD	☑ FLUORESCENT ☐ VISIBLE	☑ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED	
FAMILY BRAND	MAGNAFLUX	BLACK LIGHT S/N 16459	☐ OUTPUT > 1000 µW/cm² ☐ AMBIENT < 2 fc
PENETRANT	ZL67 — MINIMUM DWELL TIME 45 10 MIN.	LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT	☐ OUTPUT>100 fc @ SURFACE
PENETRANT REMOVER	420 — MINIMUM DRY TIME >10 MIN.	OTHER	LAB/UO
DEVELOPER	SKD-S2 — MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N 1098866	CAL DUE DATE 07/28 2012
DEVELOPER TYPE	☑ NON AQUEOUS ☐ AQUEOUS ☐ DRY		

TEST SURFACE

SURFACE CONDITION: ☐ AS GROUND ☐ AS WELDED ☑ MACHINED ☐ SHOT BLASTED ☑ CLEAN BARE METAL

SURFACE TEMPERATURE: ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☑ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☑ METRIC ☐ IMPERIAL)

CROSS TUBES
1) " W.O.# 80718 ✓
1) " " 80719 ✓ → REGRAND 1 Time 5/7/64/02
1) " " 80722 ✓
1) " " 78255 ✓
1) " " 78256 ✓

11) SLEEVE W.O.# 80362 ✓

5) STUD W.O.# 78909 ✓

SIGNATURES

CLIENT REPRESENTATIVE: Andrew Sheldon (PRINT) — [signature] (SIGNATURE) — DTR # E-63484

TECHNICIAN (SIGNATURE): [signature]

NAME (PRINT): M. Keating [illegible]

1st TECHNICIAN — CGSB LEVEL II — SNT LEVEL II — CGSB REG. NO 6606

2nd TECHNICIAN — CGSB LEVEL ___ SNT LEVEL ___ CGSB REG. NO ___

REPORT REVIEWED BY: NAME ___ INITIALS ___

WHITE – CLIENT COPY CANARY – OFFICE COPY PINK – TECHNICIAN COPY GOLD – OFFICE COPY

REFERENCE ONLY

5.0 PARTS LIST

5.1 HIGH GEAR CROSSTUBES

Item	-101	-201	-203	Part Number	Description
	X			**D212-664-101**	**CROSSTUBE INSTALLATION, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD**
		X		**D212-664-201**	**CROSSTUBE INSTALLATION, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT**
			X	**D412-664-203**	**CROSSTUBE INSTALLATION, 412 HIGH AFT**
1	1			D212-664-141	CROSSTUBE ASSEMBLY, 204/205/210/212/214/412, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH FWD
2		1		D212-664-241	CROSSTUBE ASSEMBLY, 204/205/210/212/214, UH-1H, UH-1A/B/E/F/L/P, TH-1F/L, HH-1K HIGH AFT
3			1	D412-664-243	CROSSTUBE ASSEMBLY, 412 HIGH AFT
10	2			* D2893-1	SUPPORT
11	4			* D3595-063-450	RUBBER CUSHION
12	4			* MS21920-25	CLAMP (OR MS21042-26)
13	4			AN6-35A	BOLT
14	4			AN6-36A	BOLT
15	6			MS21042L6	NUT (OR MS21042-6)
16	18			AN960JD616	WASHER
20		2		* D2940-1	SUPPORT
21		4		* D3595-063-530	RUBBER CUSHION
22		4		* MS21920-28	CLAMP (OR MS21042-30)
23		4		AN6-40A	BOLT
24		2		AN6-41A	BOLT
25		6		MS21042L6	NUT (OR MS21042-6)
26		18		AN960JD616	WASHER
30			1	* D2896-1	SUPPORT
32			2	* D3595-063-570	RUBBER CUSHION
33			4	* MS21920-28	CLAMP
34			2	* MS21920-30	CLAMP (OR MS21042-32)
35			4	AN6-40A	BOLT
36			2	AN6-41A	BOLT
37			6	MS21042L6	NUT (OR MS21042-6)
38			18	AN960JD616	WASHER
39			2	* D3189-1	CHAFING SHIELD
50	1	1		D3428-1	PLACARD

*REFERENCE ONLY. PARTS ARE INCLUDED IN D212-664-141/-241 OR D412-664-243 ASSEMBLIES ABOVE

NOTE: KITS INCLUDE EXTRA HARDWARE FOR COMPATIBILITY WITH BOTH DART AND BELL/AAI SKIDTUBES.